


The Role of the Petroleum Engineer in the Project Financing Team

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Project financing has become popular among oil companies because of the many advantages the companies believe can be gained from this method of financing. The increase in popularity of this unusual kind of loan has required new roles for both bankers and engineers. Traditionally, bankers have confined their lending to "balance sheet loans," so called because the borrower is a company that has been in business for a number of years and thus has historical earnings that provide a measure of the ability of the company to repay the loan in the future. Also, the borrower's financial statement shows a net worth that has been built up over the years, and the net worth is not based on a wasting asset, such as a reserve of oil and gas. In the past, bankers have confined their analyses largely to the borrower's past performance and present financial condition. However, project financing often involves a loan where the bank has recourse only to oil and gas properties, which are sometimes undeveloped. The borrower does not have a record of profitable operations and has a net worth confined to a small amount of equity that has been invested along with the project loan. In such financings, the lender has no reliable balance sheet to analyze and usually must rely heavily on a projection of a revenue stream from the new project. Any projection is only as good as the assumptions on which it is based, and the typical banker is not qualified to evaluate these assumptions. Furthermore, there is an inherent equity risk involved in the exploration and development of oil and gas properties, and most bankers think this risk is beyond the scope of risks that should be assumed by a bank. Therefore, the banker needs help from the petroleum engineer to evaluate the engineering risks involved in the development and operation of oil properties to ensure that the bank is sheltered from any equity risks associated with the project. With the help of the petroleum engineer, the banker sets basic criteria, such as coverage ratios, for these types of loans. However, these minimum standards do not provide adequate protection to the bank unless the projected revenue stream on which they are based is realistic. Most bankers do not have the expertise to analyze the engineering assumptions used to determine these projections. For example, the banker usually isn't qualified to handle the following tasks. 1. Classify the reserves by proved, probable, and possible. 2. Judge the adequacy of the well spacing. 3. Judge the reasonableness of the assumed production rate, the assumed development costs, or the assumed recovery efficiency. 4. Understand completely how much added risk may be involved in a very deep well, in an offshore property, or in a loan based on a limited number of wells. 5. Account for the impact on the final projection of such factors as permeability, porosity, water saturation, type of trap, type of drive, or quality of the oil or gas. 6. Ascertain the difference between the production performance decline curve analysis and the volumetric performance decline curve analysis and the volumetric analysis and measure the effects of these methods on the reliability of the projections. 7. Estimate operating costs for the property being analyzed. 8. Evaluate the ability of the operator. Finally, many of these loans are based on proved but undeveloped properties. Banks usually are reluctant to accept an undeveloped

property as collateral unless there is an undertaking by a financially responsible party to assure that the development of the property will be completed. The banker usually relies on the engineer to specify the criteria for defining completion of the project. project. Many banks approach project financing as a team effort, often involving the banker, a petroleum engineer, an economist, and a lawyer.

P. 799

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Subjects: Asset and Portfolio Management, Project management, Strategic Planning and Management

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